

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellant: Holger Lorenz et al.)
)
Serial No.: 10/562,596) Before the Board of Appeals
)
Filed: December 22, 2005) Appeal No.
)
For: SEAT OCCUPANCY SENSOR)

APPEAL BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

This Appeal Brief is submitted following the filing of the Notice of Appeal in this application on November 17, 2008 in response to the Final Office Action mailed on May 21, 2008 and the Advisory Action mailed on September 11, 2008.

I. THE REAL PARTY IN INTEREST

The real party in interest is IEE INTERNATIONAL ELECTRONICS AND ENGINEERING S.A. and BAYERISCHE MOTOREN WERKE AG, the assignees of record.

II. RELATED APPEALS AND INTERFERENCES

Appellant knows of no related patent applications or patents under appeal or interference proceedings.

III. STATUS OF CLAIMS

Presently, claims 1-24 are pending in the application. Each claim has been twice rejected, and no claims have been allowed or confirmed, withdrawn, objected to or cancelled. Accordingly, the rejections of claims 1-24 are being appealed.

IV. STATUS OF AMENDMENTS

Claims 1-10 were filed as part of the original application. Claim 1-10 were then amended by way of the Preliminary Amendment filed on December 22, 2005 in which claims 11-24 were added. No further amendments to the claims have since been proposed or entered.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Claim 1 is directed to a seat occupancy sensor 10 with at least two pressure actuatable switching elements 12 and 14. The switching elements 12 and 14 are associated with a surface of a seat and have a certain distance between them such that a first switching element 12 is associated with a first area of the seat and a second switching element 14 is associated with a second area of the seat. In addition, the first switching element 12 and the second switching element 14 are connected together so as to implement a logical AND operation. See page 8, lines 10-12 of the original specification.

The first and second switching elements 12 and 14 are connected in series and the first and/or second switching element 12 or 14 comprises a pressure sensor. See page 8, lines 15-22 of the original specification.

The first and/or second switching element 12 and 14 comprises a plurality of individual switching cells 16 or 16' connected together in such a way as to implement a logical OR operation with the individual switching cells 16 or 16' of a switch element 12 or 14 connected in parallel and a switching cell comprises a pressure sensor. See page 9, lines 7-14 of the original specification.

The pressure sensor comprises a foil-type pressure sensor of a "through-mode" type or a "shunt mode" type. See page 7, lines 4-6 and page 8, lines 20-33 of the original specification.

The first and second switching elements 12 and 14 are arranged at least approximately at equal distances from a seat centerline running longitudinally with respect to the vehicle and at a certain distance from each other or essentially symmetrically with respect to a seat centerline running longitudinally with respect to the vehicle and at a predetermined distance from each other. See page 9, lines 25-31 of the original specification.

Claim 13 is directed to a seat occupancy sensor 10 comprising at least two pressure actuatable switching elements 12 and 14. The switching elements 12 and 14 are integrated into a vehicle seat and associated with a seating surface of the vehicle seat with a certain distance between them such that a first switching element 12 is associated with a first area of the seat and a second switch element 14 is associated with a second area of the seat. The first switching element 12 and the second switching element 14 are connected together so as to implement a logical AND operation. See page 8, lines 10-12 of the original specification.

VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL

In the Office Action of September 11, 2007, claims 1-6, 9, 10, 13-18, 21 and 22 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Meister et al. (US Patent No. 5,570,903), claims 7, 11, 19 and 23 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Meister in view of Federspiel (US Patent No. 7,160,460) and claims 8, 12, 20 and 24 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Meister in view of Bieck (US Patent Application Publication No. 2004/0163939). These rejections were reiterated in the Final Office Action of May 21, 2008.

VII. ARGUMENT

A. The Rejections of Claims 1-6, 9, 10, 13-18, 21 and 22 under 35 U.S.C. §103(a)

Claims 1-6, 9, 10, 13-18, 21 and 22 have been rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 5,570,903 to Meister (hereinafter referred to as “Meister”). Applicants respectfully traverse these rejections.

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing that all elements of the invention are disclosed in the prior art and that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996).

Applicants’ claims 1 and 13 recite *inter alia*:

“said first switching element and said second switching element being connected together in such a way as to implement a logical AND operation.”

In the Office Action of September 11, 2007 and the Final Office Action of May 21, 2008, the Examiner acknowledged that Meister does not teach a first switching

element and second switching element that are *connected* together in such a way as to implement a logical AND operation. Applicants agree. The Examiner then suggested that this defect of Meister can be cured since Meister discloses “an analyzer circuit that is set up to determine the presence of a sitting person based on any user desired combination of inputs from the sensors,” and that “it would have been obvious to one of ordinary skill in the art to use a logical AND gate operation between the two set of sensors in order to provide a more conclusive indication of someone sitting.” Applicants disagree with this reasoning and respectfully assert that no motivation exists for the modification described above.

Meister teaches a seat occupancy sensor with a number of pressure actuatable switching elements, which are disposed in a vehicle seat in an array configuration. Each switching element taught in Meister provides an electrical output signal, which is dependent upon pressure acting on the switching element. According to Meister, all the switching elements are connected to corresponding individual inputs of an analyzer circuit (please see column 5, lines 9-22).

It follows, then, that the analyzer circuit receives the individual output signals of all the switching elements and uses all these individual output signals in order to evaluate a pressure profile and to thereby distinguish between a number of seat occupancy classes by calculating parameters such as the weight of an occupant of the

seat. In order to be able to calculate these parameters, it is absolutely mandatory that the analyzer circuit of Meister receive the individual output signals of all the different sensors.

The above teachings of Meister are in contrast to Applicant's claimed configuration, in which the first switching element and second switching element are connected together in such a way as to implement a logical AND operation. Via such a connection, the first switching element and second switching element are hardwired together so that an output signal from the first and second switching element is only measurable if each one of the switching elements is triggered or activated. Thus, as Meister requires its disclosed analyzer circuit to receive the individual output signals of all the different sensors (see above), the teachings of Meister are incompatible with Applicant's claimed connection of the first and second sensors. Accordingly, the Examiner's proposed modifications to Meister would render the device of Meister unsatisfactory for its stated and intended purpose of distinguishing among the different occupancy classes discussed at column 5, lines 25-28. Therefore, since the Examiner's proposed modification would render Meister unsatisfactory for its intended purpose, this modification is improper (please see **MPEP 2143.01 V**).

Applicant further and respectfully notes that, in contrast to the Examiner's allegations, Meister neither discloses nor suggests that the analyzer circuit determines

the occupancy class based on any user desired combination of output signals of the switching elements. It follows that the person of ordinary skill in the art would not find any teaching in the Meister disclosure that would prompt use specific combinations of output signals of the switching elements in order to provide a more conclusive indication of someone sitting.

Accordingly, Applicant respectfully asserts that there is no motivation found in Meister that would lead one of ordinary skill in the art to modify the switching elements of Meister as the Examiner proposes. Therefore, Applicant further asserts that Meister does not teach, at least, the “connection” element of Applicant’s claims.

As an additional matter, applicants submit that, if Meister were modified as suggested by the Examiner with a hardwired combination of sensors in a logical AND circuit (so that the output signal of said first and second switching elements is only measurable, if each one of said first and second switching elements is triggered or activated), the amount of information received by the analyzer circuit of Meister from the seat occupancy sensor mat would be dramatically reduced and, as a result, a classification of the occupancy situation based on pressure profiles would be impossible.

Further, even if the person of ordinary skill in the art would have been motivated

to use a logical AND gate operation in Meister as alleged by the Examiner in the last sentence of page 2 of the final office action of May 21, 2008, he would not have arrived at a seat sensor as claimed in claim 1 or claim 13, i.e. a sensor in which said first switching element and said second switching element are connected together in such a way as to implement a logical AND operation.

In fact, according to Meister, all the switching elements are connected to corresponding individual inputs of an analyzer circuit, which means that the analyzer circuit receives the individual output signals of all the switching elements. Based on all these output signals, the analyzer circuit evaluates the pressure profile and distinguishes between numbers of different seat occupancy classes, by calculating among others parameters such as the weight of an occupant of the seat.

If the person of ordinary skills would have considered an AND combination of sensor outputs, he would have done so by logically combining the output signals of the respective switching elements within said analyzer circuit. Such a logical combination would represent the straightforward solution in case of a consideration of combined sensor outputs. In this context we should point out this straightforward solution is already disclosed in US patent application US 2003/0023414 A1 to Lich et al., which was included in the IDS filed on December 22, 2005.

Lich et al. disclose a method for passenger classification using a seat mat in the vehicle seat. The method comprises the calculation of a parameter indicative of how coherent the active matrix elements are, in particular, how large the largest coherent area is. According to Lich et al., the seat mat 1 sequentially supplies the individual sensor values as current values to a processor 2 (see paragraph [0015]), which determines from the seat profile a first result matrix having active and inactive matrix elements (see paragraph [0016]). The processor then calculates a second result matrix through a logical AND operation of the matrix elements of different and adjoining columns of the first result matrix (see paragraph [0018]). It follows that Lich et al. clearly teach the combination of sensor outputs by calculating a logical combination of values indicative of the individual sensor outputs in the processor.

A person skilled in the art, which would have intended to improve the Meister classification by considering an AND combination of sensor outputs, would have found a clear teaching in the Lich et al. document, which would have prompted him to logically combine the individual sensor outputs by calculation in the analyzer circuit. Such a logical combination of individual sensor values in the processor would allow preserving Meister's ability to distinguish between the different occupancy situations and thus constitutes a straightforward solution in case of an additional consideration of combined sensor outputs.

In contrast, the switching elements according to the present invention are physically connected together in such a way, that an AND operation is implemented. This means that the first and second switching elements are hardwired together and that the output signal of said first and second switching elements is only measurable, if each one of said first and second switching elements is triggered or activated.

It follows that the prior art at file provides a clear teaching to the one skilled in the art, which leads away from the claimed configuration of sensor elements which are physically connected together so as to form a logical AND combination. Thus, even if the skilled person had found some motivation in the prior art to consider a combination of sensor outputs he would have arrived at a solution that is entirely different from the claimed sensor configuration. Accordingly the subject matter of claim 1 cannot be obvious with respect to the prior art.

For at least these reasons, Applicant respectfully submits that claims 1 and 13, as well as claims 2 -6, 9, 10, 14-18, 21 and 22 that depend respectively therefrom, are not obvious over Meister.

B. The Rejections of Claims 7, 11, 19 and 23 under 35 U.S.C. §103(a)

Claims 7, 11, 19, and 23 have been rejected under 35 U.S.C. §103(a) as being obvious over Meister in view of United States Patent No. 7,161,460 to Federspiel

("Federspiel" hereinafter). Applicants respectfully traverse these rejections.

Claims 7, 11, 19, and 22 depend variously from claims 1 and 13. Thus, for at least the reasons set forth above, Applicant respectfully asserts that Meister does not teach every element of Applicant's claims 7, 11, 19, and 22. Federspiel does not remedy the deficiencies of Meister. Instead of teaching connected switching elements as claimed by Applicant, Federspiel teaches a first and second carrier foil and spacer. Accordingly, Applicant respectfully submits that any combination of Meister and Federspiel does not teach every element of Applicant's claims, and thus, claims 7, 11, 19, and 22 are not obvious over any combination of Meister and Federspiel.

C. The Rejections of Claims 8, 12, 20 and 24 under 35 U.S.C. §103(a)

Claims 8, 12, 20, and 24 have been rejected under 35 U.S.C. §103(a) as being obvious over Meister in view of United States Publication No. 2004/0163939 to Bieck ("Bieck" hereinafter). Applicant respectfully traverses.

Claims 8, 12, 20, and 24 depend variously from claims 1 and 13. Thus, for at least the reasons set forth above, Applicant respectfully asserts that Meister does not teach every element of Applicant's claims 8, 12, 20, and 24. Bieck does not remedy the deficiencies of Meister. Instead of teaching connected switching elements as claimed by Applicant, Bieck teaches a carrier foil and spacer, and is silent as to interconnecting of several switching elements in such a way that allows implementation

of logical AND operation. Accordingly, Applicant respectfully submits that any combination of Meister and Bieck does not teach every element of Applicant's claims, and thus, claims 8, 12, 20, and 24 are not obvious over any combination of Meister and Bieck.

VIII. CONCLUSION

In view of the foregoing, it is urged that the final rejection of claims 1-24 be overturned. The final rejection is in error and should be reversed. Please charge the fee set forth in 37 CFR 41.20(b)(2) to Deposit Account No. 06-1130. If there are any additional charges with respect to this Appeal Brief, or otherwise, please charge them to Deposit Account No. 06-1130.

Respectfully submitted,

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IX. APPENDIX A - CLAIMS

1. (Rejected) Seat occupancy sensor with at least two pressure actuatable switching elements, said switching elements to be associated to a surface of a seat with a certain distance between them in such a way that a first switching element is associated to a first area of the seat and a second switch element is associated to a second area of the seat, wherein said first switching element and said second switching element are connected together in such a way as to implement a logical AND operation.
2. (Rejected) Seat occupancy sensor according to claim 1, wherein the first and second switching elements are connected in series.
3. (Rejected) Seat occupancy sensor according to claim 1, wherein the first and/or second switching element comprises a pressure sensor.
4. (Rejected) Seat occupancy sensor according to claim 1, wherein the first and/or second switching element comprises a plurality of individual switching cells connected together in such a way as to implement a logical OR operation.
5. (Rejected) Seat occupancy sensor according to claim 4, wherein the individual switching cells of a switch element are connected in parallel.

6. (Rejected) Seat occupancy sensor according to claim 4, wherein a switching cell comprises a pressure sensor.
7. (Rejected) Seat occupancy sensor according to claim 3, wherein the pressure sensor comprises a foil-type pressure sensor of a "through-mode" type.
8. (Rejected) Seat occupancy sensor according to claim 3, wherein the pressure sensor comprises a foil-type pressure sensor of a "shunt mode" type.
9. (Rejected) Seat occupancy sensor according to claim 1, wherein the first and second switching elements are arranged at least approximately at equal distances from a seat centreline running longitudinally with respect to the vehicle and at a certain distance from each other.
10. (Rejected) Seat occupancy sensor according to claim 1, wherein the first and second switching elements are arranged essentially symmetrically with respect to a seat centreline running longitudinally with respect to the vehicle and at a predetermined distance from each other.
11. (Rejected) Seat occupancy sensor according to claim 6, wherein the pressure sensor comprises a foil-type pressure sensor of a "through-mode" type.

12. (Rejected) Seat occupancy sensor according to claim 6, wherein the pressure sensor presents a foil-type pressure sensor of a "shunt mode" type.

13. (Rejected) Seat occupancy sensor comprising at least two pressure actuatable switching elements, said switching elements to be integrated into a vehicle seat and associated to a seating surface of said vehicle seat with a certain distance between them in such a way that a first switching element is associated to a first area of the seat and a second switch element is associated to a second area of the seat, said first switching element and said second switching element being connected together in such a way as to implement a logical AND operation.

14. (Rejected) Seat occupancy sensor according to claim 13, wherein the first and second switching elements are connected in series.

15. (Rejected) Seat occupancy sensor according to claim 13, wherein the first and/or second switching element comprises a pressure sensor.

16. (Rejected) Seat occupancy sensor according to claim 13, wherein the first and/or second switching element comprises a plurality of individual switching cells connected together in such a way as to implement a logical OR operation.

17. (Rejected) Seat occupancy sensor according to claim 16, wherein the individual switching cells of a switch element are connected in parallel.

18. (Rejected) Seat occupancy sensor according to claim 16, wherein a switching cell comprises a pressure sensor.

19. (Rejected) Seat occupancy sensor according to claim 15, wherein the pressure sensor comprises a foil-type pressure sensor of a "through-mode" type.
20. (Rejected) Seat occupancy sensor according to claim 15, wherein the pressure sensor comprises a foil-type pressure sensor of a "shunt mode" type.
21. (Rejected) Seat occupancy sensor according to claim 13, wherein the first and second switching elements are arranged at least approximately at equal distances from a seat centreline running longitudinally with respect to the vehicle and at a certain distance from each other.
22. (Rejected) Seat occupancy sensor according to claim 13, wherein the first and second switching elements are arranged essentially symmetrically with respect to a seat centreline running longitudinally with respect to the vehicle and at a predetermined distance from each other.
23. (Rejected) Seat occupancy sensor according to claim 18, wherein the pressure sensor comprises a foil-type pressure sensor of a "through-mode" type.
24. (Rejected) Seat occupancy sensor according to claim 18, wherein the pressure sensor presents a foil-type pressure sensor of a "shunt mode" type.

X. EVIDENCE APPENDIX

None

XI. RELATED PROCEEDINGS APPENDIX

None